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A NEW SABER-TOOTHED CAT FROM NEBRASKA

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A NEW SABER-TOOTHED CAT FROM NEBRASKA

BY ERWIN H. BARBOUR AND HAROLD J. COOK

During the field season of 1913, while exploring the Pliocene beds of Brown County, Mr. A. C. Whitford, a Fellow in the Department of Geology, University of Nebraska, discovered the mandible of a new machærodont cat. His work in this region was in the interest of the Nebraska Geological Survey and the Morrill Geological Expeditions.[1]

The known fossil remains of the ancestral Felidæ fall into two natural lines of descent, as pointed out by Dr. W. D. Matthew.[2] Beginning in the Oligocene, we find two genera as contemporary forms,

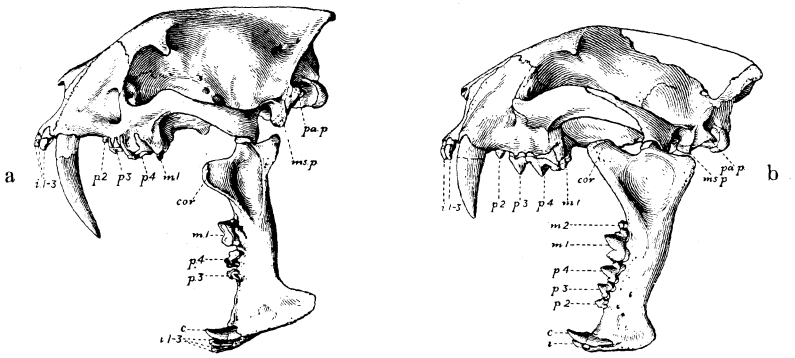

Fig. 1.—a, Dinictis squalidens, Middle Oligocene. x ¼. b, Hoplophoneus primaevus, Middle Oligocene. x ¼. After Matthew.

Hoplophoneus and Dinictis, which are of immediate interest. Dinictis gave rise to the true cats, which have survived to the present time, passing through the genera Nimravus, Pseudælurus, and Felis, in the order named. Hoplophoneus gave rise to the "saber-toothed" cats, so called because they developed two immense canine teeth in the upper jaws. Hoplophoneus was succeeded by Machærodus, and this in turn by Smilodon. In the last named, the phylum culminated in relatively

1. A preliminary account of the region and its fossils may be found in the University Studies, vol. 14, No. 2, 1914, and in brochures 32 and 33 of the Nebraska Geological Survey.

2. Matthew, W. D., Phylogeny of the Felidae, Bull. Am. Mus. Nat. Hist., vol. 28, Art. 26, 1910.

recent time. It was contemporaneous with primitive man. A third genus, Eusmilus, is also present in the Oligocene, but belongs to still another group paralleling Smilodon.

The typical Machærodus comes from Europe, and it is doubtful whether this genus really occurs in America. Forms very like it do occur, but owing to the fragmentary condition of much of the known material from the later Tertiary formations of this country, our knowledge of them is incomplete, and better specimens will probably show the American "Machærodus" to be distinct from the European form. The later Machærodontidae stand in great need of revision. The new species herein described falls most readily under the definition of Eusmilus, and will be treated as such for the purposes of this paper.

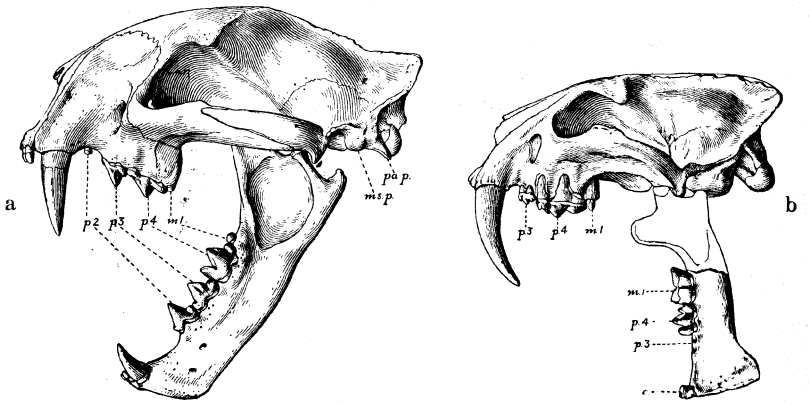

Fig. 2.--a, Nimravus gomphodus, Upper Oligocene. x ¼. b, Machaerodus palmidens, Middle Miocene of France. x ¼. After Matthew.

However, it shows affinities to Machærodus. As a revision of the literature is out of the province of this paper, a discussion of these relationships will not be attempted.

For this new species of Eusmilus, the specific name, whitfordi, is proposed in recognition of the finder, Mr. A. C. Whitford.

Subfamily—Machærodontinae
Genus —Eusmilus
Species —whitfordi, sp. nov.

$$\text{Dentition}\frac{?}{2—1—2—1}$$

Type, right lower jaw, No. 7-2-4-13 complete with the exception of P_3, and the crowns of the incisors and canine.

The jaw is about the size of Felis concolor, but of very different proportions. The symphysial flange is very deep, and indicates a long, slender canine. The symphysial attachment is narrow, and extends far down the flange, almost vertically. The coronoid process is extremely reduced, the top being on a level with the crowns of the cusps of P_4 and M_1. It is relatively small and more reduced than in Smilodon. The angle of the jaw is strongly developed. The masseteric

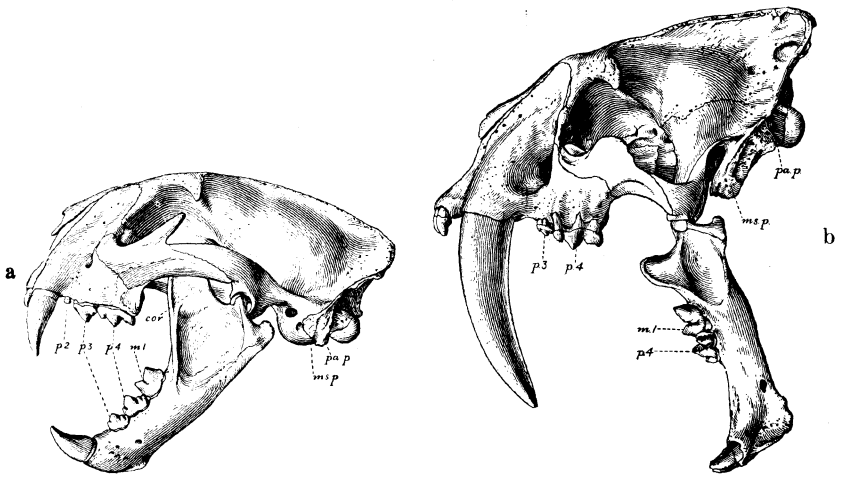

Fig. 3.—a, Felis concolor, "Rocky Mountain Lion," Puma. x ¼. b, Smilodon californicus, Pleistocene. x ¼. After Matthew.

fossa is deep and rough. The diastema is proportionally short between P_3 and the canine. P_3 is represented by the alveolus, and was evidently vestigial. P_4 is well developed, with three principal cusps. The notch between the paraconid and protoconid is shallow, and there may have been a rudimentary posterior cusp. If present, it was very small. Both cutting teeth are well worn down, so that it is impossible to tell to what extent the cusps are developed. The animal was less than half the size of the Pleistocene Smilodon californicus, found in the famous Rancho la Brea beds at Los Angeles.

The University of Nebraska
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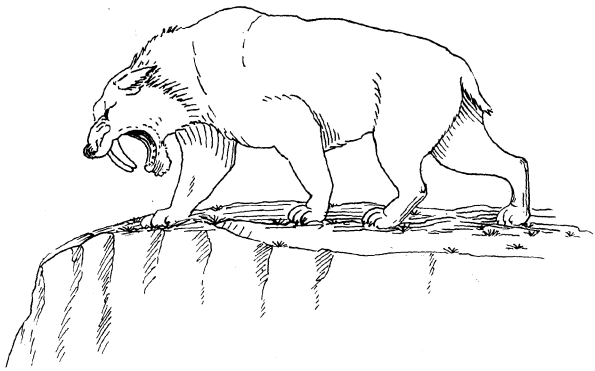

Fig. 4.—Saber-toothed tiger, Smilodon neogaeus. Lower Pleistocene. Modified after Osborn and Knight.

EUSMILUS WHITFORDI, SP. NOV.

a. Mandible, outer surface.
b. Same, inner surface.
c. Same, crown view.
Incisors restored.